Human Dimensions of Global Change Research (HDGCR)

FY 2004 Information Sheet

Goal

The goal of NOAA's Human Dimensions of Global Change Research Program is to advance our understanding of human response to and planning for the effects of climate variability in the context of multiple and interacting social and environmental pressures. The Program supports investigation into how decision makers perceive the effects of climate and how they process and use new scientific findings and information relevant to climate and its impacts. To ensure that society as a whole gains from the emerging knowledge and forecasting capabilities of global change science, we also encourage research directed toward the nature of participation in these decision processes and identification of practices, operations, individuals, and/or organizations affected or influenced by changed decisions. This Program is designed to advance the knowledge necessary to build local, regional, and national capacity to reduce vulnerability to climate related impacts.

Rationale

In the mid 1980s, dynamic climate models designed to simulate the interaction of the ocean and atmosphere in the tropical Pacific began to show skill in predicting the behavior of the El Niño phenomenon. The scientific community working on predictability was enthusiastic about the potential that forecasts might have for reducing vulnerability to El Niño-related climate variability. They assumed that predictive information would be, by its nature, useful information and therefore would result rather directly in better decisions.

As a result, NOAA's Climate and Global Change Program became heavily invested in the research that lead to forecast capability; the Program remains committed to extending understanding of the climate system. In order to get to the point of realizing potential benefits associated with predictive insights into the behavior of the climate system, this office recognized the need to advance our understanding of how humans experience climate, the nature and interaction of social, economic, and ecological vulnerability to problems affected by climate, and the constraints that influence coping systems. As expressed in the 1999 NRC Report, *Making Climate Forecasts Matter*, there is still much to learn as we do not yet have a comprehensive or systematic picture of the potential or actual benefits of climate forecasts. (Easterling and Stern, 1999)

Global change science over the last few years has embraced the importance of decision relevance within the process of research planning (see *Global Environmental Change: Research Pathways for the Next Decade, and Our Changing Planet FY 2001*). Two NRC reports, *Our Common Journey and The Science of Regional and Global Change: Putting Knowledge to Work*, begin to chart the course toward global change science agendas designed specifically to address broader issues of sustainability and vulnerability.

NOAA's Human Dimensions Program is fully consistent with and supportive of these developments and encourages those responding to this announcement to be cognizant of these trends.

Current Funding Priorities

For FY2004, this program will have three priorities: (1) a new focus on adaptation; (2) a restructured focus on synthesizing our current state of knowledge; and (3) a continuation of the focus of the last few years' announcements on communication.

Decisions on the number of projects to fund for each priority will be determined by the quality and quantity of proposals received in response to this call for proposals.

A description of each priority follows.

Priority 1: Adaptation

For FY2004, the HDGCR program is soliciting proposals to address how society can better adapt to climate variability and change, a topic that the research community has deemed critical (see for example Global Environmental Change, Research Pathways for the Next Decade from the National Research Council). Specifically, this priority seeks to begin to answer the following questions:

> What adaptation strategies have proven most successful in addressing resiliency simultaneously for short-term extreme events and seasonal to inter-decadal variability?
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> How could these strategies be useful for the impacts of long-term climate trends?
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> Where are these strategies at odds?
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> How can we use this knowledge to increase resiliency of human systems to both short-term events and long-term change?

For this priority, we are interested in projects that focus on regional to local scales. Projects may concentrate on a particular sector, multiple sectors, and/or a specific geographic area. Projects may also compare across locales/regions where adequate baseline knowledge is available. The results of this research should be able to provide decision makers within the region(s) under study information and/or tools to be able to further existing strategies. Projects must include analyses of decision making in the face of seasonal or year-to-year changes in climate. Thus, including decision makers in all aspects of the research is highly encouraged.

The Letter of Intent should be explicit as to the location of the project, a background of the area to be studied (including vulnerabilities, thresholds, and coping capacity), and if relevant, the level at which decision makers will be involved in the project.

Priority 2: Synthesis

Because Human Dimensions of Global Change Research encompasses so many sectors and regions throughout the world, it is difficult to obtain a complete understanding of progress in the human dimensions' arena. We are soliciting proposals for one to two-year projects that will contribute to a better understanding of the state of the knowledge within this multi-disciplinary focus. In responding to this priority, PIs should be explicit as to the nature of the problem to be synthesized and the methodology to accomplish the synthesis.

Decision makers are essential to this process. PIs must be specific when identifying the decision makers, what decisions are key to the proposed study, and how the decision makers will be included throughout the project.

There are a number of approaches that may be taken to obtain funding for the Priority 2 activities. One option is to hold a workshop and write an executive summary of this meeting and/or publish a paper summarizing the findings. Other options may be proposed.

Possible topics for synthesis projects include:

Communication. e.g., improving ways of communicating forecast information to users; the role of the media in communicating scientific forecast information to users; verification of forecast skills – what happens after the forecast leaves the forecaster and what are the consequences; the confluence of scientific and local knowledge. PIs interested in a communication-related topic may wish to build on work started at the "Communication of Climate Forecast Information Workshop" held at the IRI in June 2001.

Decision Tools. e.g., what tools are used and are needed by decision-makers for the uptake of climate information?

Specific Sector and/or a Geographic Focus. e.g., water management in the United States, subsidence farming in Africa, energy markets in the United States, natural disaster mitigation in Latin America, etc.

The Importance of Scale (of information and of management). - e.g. what are the issues and/or problems for which managers might consider climate information relevant, and what can be done to correlate more effectively the scale of climate information with the scale at which managers operate?

The Role of Institutions. - e.g. what are the roles played by various existing and emerging institutions and how do these institutions influence the information system? What is the effect on overall societal welfare?

Priority 3: Communication

For several years, NOAA has been funding research projects and applications activities associated with the potential or actual use of climate forecast information. Many projects have investigated the potential benefits and costs of using forecast information as well as factors currently constraining their widespread use. Most of these have looked at the use of climate information in an event-specific context.

These earlier studies and experiences with the actual use of climate forecast information in real world settings provide an emerging foundation of knowledge and point to the need for a more systematic understanding of information systems appropriate to the delivery of climate information amenable to social coping systems. The research priority for Fiscal Years 2002 and 2003 funding was to improve our understanding of communication, dissemination, and evaluation of climate analysis and forecast information. The objective was to provide knowledge that contributes to improving the relationship between the information delivery system and the social coping system such that societal welfare in its broadest sense is enhanced. In FY2004, we would like to continue funding similar projects. We encourage applicants to submit proposals for one to three years of research on this topic. One aspect that this office is interested in exploring is learning how forecast information is integrated through a system of decision-making; we welcome other topics as well.

Approach

Multidisciplinary teams of investigators are often needed to address the complex issues at hand. These teams can be comprised of different social science disciplines or across the disciplines of social and natural sciences. In the past, many of the successful proposed approaches have integrated social with natural or physical science components to form a more comprehensive analysis of the dynamics of climate-human interactions. (Please note that support for extensive modeling of the physical system is more appropriately handled through climate science programs both within the other sections of the Office of Global Programs and other agencies.)

Studies can be focused on regions in the US or overseas where the impacts of climate variability are acute. If the US research team is undertaking a study outside the US, they must present evidence of strong collaborations with local researchers and institutions (e.g., NGOs, extension services, state and local governments, representative private sector organizations) in the region of study. Letters of support from local collaborators should be included with the proposal.

An important objective of the program is to provide feedback to the climate science and forecasting community on the level of usefulness of the current information being produced and how the information could be more effectively communicated and disseminated. Thus, investigators are encouraged to consider developing a plan for determining how best to provide feedback on the insights/results from their research projects to members of the forecasting community, such as those at NOAA's Climate Prediction Center or the International Research Institute (IRI) for climate prediction.

Investigators are strongly encouraged to collaborate with decision makers in the region or sector to be studied. Many projects have included focus groups, and/or workshops with these communities to discuss the project framework up front and conclude with a workshop to discuss research results. See our web page for examples of past projects (http://www.ogp.noaa.gov/mpe/csi/econhd/index.htm).

We would also like to encourage creative methods of conveying the results of work done under the grant or more general knowledge about climate-human interactions to the broader community. For example, information can be displayed on websites, in non-scientific newsletters, on CDs, on short video documentaries that can be copied and disseminated, etc. This year, we are requiring successful grant applicants to provide some digital video and/or photographs of fieldwork (if applicable). These could be used in future NOAA websites, presentations and/or publications.

Applicants whose proposals are chosen for funding will be expected to undertake an ongoing dialogue with NOAA's Climate and Societal Interactions group of which the Human Dimensions research program is one element. Part of this dialogue will consist of a Principal Investigators meeting of funded projects to discuss common questions and frameworks to be addressed in the new research projects.

Proposal submission

The full guidelines for proposal submission can be found in the NOAA FY 2004 call for proposals for its Climate and Global Change Grants Program (www.ogp.noaa.gov). However, investigators are advised to include the following information in their proposals.

Proposals should sufficiently build on what is already known from the published literature about the proposed topic (e.g., value of climate information, decision making under uncertainty, use/transfer of new scientific information, integrated modeling of natural and human systems, sectoral analyses.) A publications list from prior NOAA HDGCR projects is available on our web site.

Because of the interdisciplinary nature of the program and the proposals we receive, it is essential that investigators describe in extensive detail the proposed methodology and how it will be accomplished. Investigators need to be explicit about hypotheses to be tested, data to be collected, analyses to be performed, components of any proposed modeling, and expected output for theoretical advancement of the topic area. For proposals from a team of researchers, a plan, which includes the roles of the investigators and how the team will interact and integrate the multiple components, must be clearly specified. Investigators who will not be requesting funds for salaries must also be listed along with their estimated time of commitment.

In addition, please provide a minimum of four names of potential mail reviewers that NOAA could use to review your project. If we use your suggestions, these reviewers will

have to sign a document that assures that there is no conflict of interest on their part in reviewing your proposal.

Competition for funding in this program continues to be very strong. We encourage cost-sharing arrangements between agencies. The program normally receives about seventy letters of intent for proposed research projects, and less than half of those are encouraged for submission of full proposals. Of the full proposals submitted, only about 10-15% are selected for funding. Program funds are expected to be extremely limited again. For further information, contact Dr. Nancy Beller-Simms, (301) 427-2089, ext 180; or e-mail: Nancy.Beller-Simms@noaa.gov

Funding availability

Contingent on the availability of funds through the FY 2004 budget process, up to $1 million may be available for new projects. Please note that the average funding level is about $100K per year, ranging from $50K - $140K per year. Applicants are encouraged not to exceed requests of $150K per year for multi-year projects.

Sources of background information for developing a relevant proposal

At the request of NOAA, the National Research Council (NRC) of the National Academy of Sciences developed a science plan for the area of the human dimensions of seasonal-to-interannual climate variability. The published NRC plan, Making Climate Forecasts Matter, lays out the state of knowledge and a series of critical research questions, and it provides a valuable set of references. All researchers interested in the NOAA Human Dimensions program are highly encouraged to read this book, particularly chapter six on Scientific Priorities. The full book is available on the National Academy Press web site at http://books.nap.edu/catalog/6370.html.

Other useful publications include, Coping With Climate: A Way Forward, Our Common Journey: A Transition Toward Sustainability, and The Science of Regional and Global Change: Putting Knowledge to Work

References

Coping With Climate: A Way Forward. Summary for Policymakers. A Multi stakeholder Review of Regional Climate Outlook Forums Conducted at an International Workshop; October 16-20, 2000; Pretoria, South Africa; 2001. Palisades, N.Y.: International Research Institute.

International Research Institute for Climate Prediction. Communication of Climate Forecast Information Workshop Proceedings, June 6th –8th, 2001. Palisades, N.Y. International Research Institute.

National Research Council. 1999 Global Environmental Change, Research Pathways for the Next Decade. Report of the Committee on Global Change Research, Board on

Sustainable Development, Policy Division, National Research Council. Washington.D.C..: National Academy Press.

National Research Council. 1999 Making Climate Forecasts Matter. Report of the Panel on the Human Dimensions of Seasonal-to-Interannual Climate Variability. P.C. Stern and W.E. Easterling, eds. Washington, D.C.: National Academy Press.

National Research Council. 1999 Our Common Journey: A Transition Toward Sustainability: Report of the Board on Sustainable Development, National Research Council. Washington.D.C..: National Academy Press.

National Research Council. 2001 The Science of Regional and Global Change: Putting Knowledge to Work. Report of the Committee on Global Change Research. Washington, D.C.: National Academy Press.

US Global Change Research Program 2003. Our Changing Planet: The FY 2003 Global Change Research Program: A Report by the Subcommittee on Global Change Research, Washington, D.C.: National Science and Technology Council